



**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE PILANI**

**EEE-F435 Digital Image Processing**

**Assignment -3**

**Guided By- Dr.K.K Gupta**

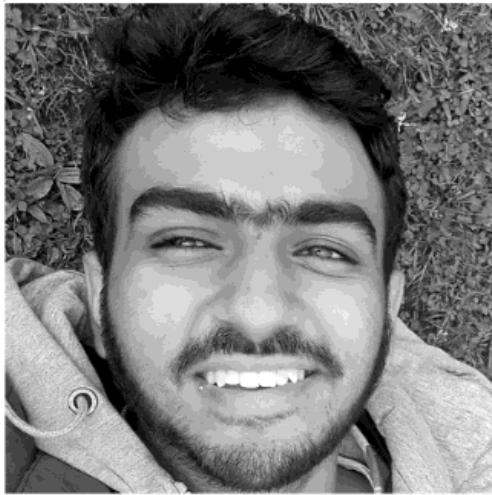
Prepared by- Vaibhav Ajmera

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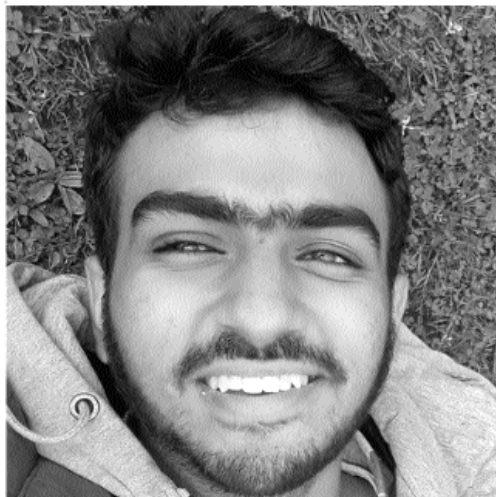
Original Image



**4-bit Gray Image**



**4-bit IGS Image**



## Code

```
clc;  
clear all;  
close all;
```

```
RGB_image = imread('pic.png');  
temp = rgb2gray(RGB_image);  
temp1 = double(temp);  
[r c] = size(temp);
```

### % Entropy Calculation

```
dum=zeros([1 256]);  
for i=1:r  
    for j=1:c  
        dum(temp1(i,j)+1)=dum(temp1(i,j)+1)+1;  
    end  
end  
dum=dum/(r*c);
```

```
ent=0;  
for i=1:256  
    if dum(i)~=0  
        ent = ent+dum(i)*log2(dum(i));  
    end  
end  
ent = ent*-1;
```

```
drop = bitand(temp,0xf0);
```

```
drop = bitshr(drop,4);
```

```
% IGS
```

```
igs = uint8(zeros(r,c));
```

```
for i=1:r
```

```
    sum = uint8(0);
```

```
    qwe=0x0f;
```

```
    for j=1:c
```

```
        sum = bitand(sum,qwe)+temp(i,j);
```

```
        if (bitand(temp(i,j),qwe)==qwe) %bitand
```

```
            sum = temp(i,j);
```

```
        end
```

```
        igs(i,j) = bitand(sum,qwe);
```

```
    end
```

```
end
```

```
igs = bitshr(igs,4);
```

```
fprintf('Entropy = %f\n',ent);
```

```
figure(1)
```

```
imshow(temp,[0 255]);
```

```
title('Original Image');
```

```
figure(2)
```

```
imshow(drop,[0 0xf]);
```

```
title('4-bit Gray Image');
```

```
figure(3)
```

```
imshow(igs,[0 0xf]);
```

```
title('4-bit IGS Image');
```

## RESULTS

**Entropy = 7.780759**